



SEQUENCE LISTING

<110> ROTIN, Daniela
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<120> RAS Activator Nucleic Acid Molecules, Polypeptides and
Methods of Use

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<140> 09/911,826

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<170> PatentIn Ver. 2.1

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Lys	Gly	Thr	Ser	Glu	Arg	Leu	Thr	Met	His	Leu	Val	Glu	Glu	His	Ser
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Val	Val	Asp	Pro	Thr	Phe	Ile	Glu	Asp	Phe	Leu	Leu	Thr	Tyr	Arg	Thr
	290					295					300				
Phe	Leu	Ser	Ser	Pro	Met	Glu	Val	Gly	Lys	Lys	Leu	Leu	Glu	Trp	Phe
305					310					315					320
Asn	Asp	Pro	Ser	Leu	Arg	Asp	Lys	Val	Thr	Arg	Val	Val	Leu	Leu	Trp
				325					330					335	
Val	Asn	Asn	His	Phe	Asn	Asp	Phe	Glu	Gly	Asp	Pro	Ala	Met	Thr	Arg
			340					345					350		
Phe	Leu	Glu	Glu	Phe	Glu	Asn	Asn	Leu	Glu	Arg	Glu	Lys	Met	Gly	Gly
		355					360					365			
His	Leu	Arg	Leu	Leu	Asn	Ile	Ala	Cys	Ala	Ala	Lys	Ala	Lys	Arg	Arg
	370					375					380				
Leu	Met	Thr	Leu	Thr	Lys	Pro	Ser	Arg	Glu	Ala	Pro	Leu	Pro	Phe	Ile
385					390					395					400
Leu	Leu	Gly	Gly	Ser	Glu	Lys	Gly	Phe	Gly	Ile	Phe	Val	Asp	Ser	Val
				405				410					415		
Asp	Ser	Gly	Ser	Lys	Ala	Thr	Glu	Ala	Gly	Leu	Lys	Arg	Gly	Asp	Gln
			420					425					430		
Ile	Leu	Glu	Val	Asn	Gly	Gln	Asn	Phe	Glu	Asn	Ile	Gln	Leu	Ser	Lys
		435					440					445			
Ala	Met	Glu	Ile	Leu	Arg	Asn	Asn	Thr	His	Leu	Ser	Ile	Thr	Val	Lys
	450					455					460				
Thr	Asn	Leu	Phe	Val	Phe	Lys	Glu	Leu	Leu	Thr	Arg	Leu	Ser	Glu	Glu
465					470					475					480
Lys	Arg	Asn	Gly	Ala	Pro	His	Leu	Pro	Lys	Ile	Gly	Asp	Ile	Lys	Lys
				485					490				495		
Ala	Ser	Arg	Tyr	Ser	Ile	Pro	Asp	Leu	Ala	Val	Asp	Val	Glu	Gln	Val
			500					505					510		
Ile	Gly	Leu	Glu	Lys	Val	Asn	Lys	Lys	Ser	Lys	Ala	Asn	Thr	Val	Gly
		515													

610		615		620	
Ser Lys Asp Thr Thr	Ala Lys Glu Val Val	Ile Gln Ala Ile Arg Glu			
625	630	635		640	
Phe Ala Val Thr Ala Thr	Pro Asp Gln Tyr Ser	Leu Cys Glu Val Ser			
	645	650		655	
Val Thr Pro Glu Gly Val	Ile Lys Gln Arg Arg	Leu Pro Asp Gln Leu			
	660	665		670	
Ser Lys Leu Ala Asp Arg	Ile Gln Leu Ser Gly	Arg Tyr Tyr Leu Lys			
	675	680		685	
Asn Asn Met Glu Thr Glu	Thr Leu Cys Ser Asp	Glu Asp Ala Gln Glu			
	690	695		700	
Leu Leu Arg Glu Ser Gln	Ile Ser Leu Leu Gln	Leu Ser Thr Val Glu			
705	710	715		720	
Val Ala Thr Gln Leu Ser	Met Arg Asn Phe Glu	Leu Phe Arg Asn Ile			
	725	730		735	
Glu Pro Thr Glu Tyr Ile	Asp Asp Leu Phe Lys	Leu Arg Ser Lys Thr			
	740	745		750	
Ser Cys Ala Asn Leu Lys	Arg Phe Glu Glu Val	Ile Asn Gln Glu Thr			
	755	760		765	
Phe Trp Val Ala Ser Glu	Ile Leu Arg Glu Thr	Asn Gln Leu Lys Arg			
	770	775		780	
Met Lys Ile Ile Lys His	Phe Ile Lys Ile Ala	Leu His Cys Arg Glu			
785	790	795		800	
Cys Lys Asn Phe Asn Ser	Met Phe Ala Ile Ile	Ser Gly Leu Asn Leu			
	805	810		815	
Ala Pro Val Ala Arg Leu	Arg Thr Thr Trp Glu	Lys Leu Pro Asn Lys			
	820	825		830	
Tyr Glu Lys Leu Phe Gln	Asp Leu Gln Asp Leu	Phe Asp Pro Ser Arg			
	835	840		845	
Asn Met Ala Lys Tyr Arg	Asn Val Leu Asn Ser	Gln Asn Leu Gln Pro			
	850	855		860	
Pro Ile Ile Pro Leu Phe	Pro Val Ile Lys Lys	Asp Leu Thr Phe Leu			
865	870	875		880	
His Glu Gly Asn Asp Ser	Lys Val Asp Gly Leu	Val Asn Phe Glu Lys			
	885	890		895	
Leu Arg Met Ile Ala Lys	Glu Ile Arg His Val	Gly Arg Met Ala Ser			
	900	905		910	
Val Asn Met Asp Pro Ala	Leu Met Phe Arg Thr	Arg Lys Lys Lys Trp			
	915	920		925	
Arg Ser Leu Gly Ser Leu	Ser Gln Gly Ser Thr	Asn Ala Thr Val Leu			
	930	935		940	
Asp Val Ala Gln Thr Gly	Gly His Lys Lys Arg	Val Arg Arg Ser Ser			
945	950	955		960	
Phe Leu Asn Ala Lys Lys	Leu Tyr Glu Asp Ala	Gln Met Ala Arg Lys			
	965	970		975	
Val Lys Gln Tyr Leu Ser	Asn Leu Glu Leu Glu	Met Asp Glu Glu Ser			
	980	985		990	
Leu Gln Thr Leu Ser Leu	Gln Cys Glu Pro Ala	Thr Asn Thr Leu Pro			
	995	1000		1005	
Lys Asn Pro Gly Asp Lys	Lys Pro Val Lys Ser	Glu Thr Ser Pro Val			
	1010	1015		1020	
Ala Pro Arg Ala Gly Ser	Gln Gln Lys Ala Gln	Ser Leu Pro Gln Pro			
1025	1030	1035		1040	
Gln Gln Gln Pro Pro Ala	His Lys Ile Asn Gln	Gly Leu Gln Val			
	1045	1050		1055	
Pro Ala Val Ser Leu Tyr	Pro Ser Arg Lys Lys	Val Pro Val Lys Asp			

	1060		1065		1070										
Leu	Pro	Pro	Phe	Gly	Ile	Asn	Ser	Pro	Gln	Ala	Leu	Lys	Lys	Ile	Leu
	1075						1080				1085				
Ser	Leu	Ser	Glu	Glu	Gly	Ser	Leu	Glu	Arg	His	Lys	Lys	Gln	Ala	Glu
	1090						1095				1100				
Asp	Thr	Ile	Ser	Asn	Ala	Ser	Ser	Gln	Leu	Ser	Ser	Pro	Pro	Thr	Ser
1105				1110						1115					1120
Pro	Gln	Ser	Ser	Pro	Arg	Lys	Gly	Tyr	Thr	Leu	Ala	Pro	Ser	Gly	Thr
			1125					1130						1135	
Val	Asp	Asn	Phe	Ser	Asp	Ser	Gly	His	Ser	Glu	Ile	Ser	Ser	Arg	Ser
		1140						1145					1150		
Ser	Ile	Val	Ser	Asn	Ser	Ser	Phe	Asp	Ser	Val	Pro	Val	Ser	Leu	His
	1155						1160					1165			
Asp	Glu	Arg	Arg	Gln	Arg	His	Ser	Val	Ser	Ile	Val	Glu	Thr	Asn	Leu
1170					1175						1180				
Gly	Met	Gly	Arg	Met	Glu	Arg	Arg	Thr	Met	Ile	Glu	Pro	Asp	Gln	Tyr
1185				1190						1195					1200
Ser	Leu	Gly	Ser	Tyr	Ala	Pro	Met	Ser	Glu	Gly	Arg	Gly	Leu	Tyr	Ala
			1205						1210					1215	
Thr	Ala	Thr	Val	Ile	Ser	Ser	Pro	Ser	Thr	Glu	Glu	Leu	Ser	Gln	Asp
		1220						1225						1230	
Gln	Gly	Asp	Arg	Ala	Ser	Leu	Asp	Ala	Ala	Asp	Ser	Gly	Arg	Gly	Ser
	1235						1240					1245			
Trp	Thr	Ser	Cys	Ser	Ser	Gly	Ser	His	Asp	Asn	Ile	Gln	Thr	Ile	Gln
1250					1255						1260				
His	Gln	Arg	Ser	Trp	Glu	Thr	Leu	Pro	Phe	Gly	His	Thr	His	Phe	Asp
1265			1270						1275						1280
Tyr	Ser	Gly	Asp	Pro	Ala	Gly	Leu	Trp	Ala	Ser	Ser	Ser	His	Met	Asp
			1285						1290					1295	
Gln	Ile	Met	Phe	Ser	Asp	His	Ser	Thr	Lys	Tyr	Asn	Arg	Gln	Asn	Gln
	1300							1305					1310		
Ser	Arg	Glu	Ser	Leu	Glu	Gln	Ala	Gln	Ser	Arg	Ala	Ser	Trp	Ala	Ser
	1315						1320					1325			
Ser	Thr	Gly	Tyr	Trp	Gly	Glu	Asp	Ser	Glu	Gly	Asp	Thr	Gly	Thr	Ile
1330					1335						1340				
Lys	Arg	Arg	Gly	Gly	Lys	Asp	Val	Ser	Ile	Glu	Ala	Glu	Ser	Ser	Ser
1345				1350					1355						1360
Leu	Thr	Ser	Val	Thr	Thr	Glu	Glu	Thr	Lys	Pro	Val	Pro	Met	Pro	Ala
			1365						1370					1375	
His	Ile	Ala	Val	Ala	Ser	Ser	Thr	Thr	Lys	Gly	Leu	Ile	Ala	Arg	Lys
	1380							1385					1390		
Glu	Gly	Arg	Tyr	Arg	Glu	Pro	Pro	Thr	Pro	Pro	Gly	Tyr	Ile	Gly	
	1395					1400					1405				
Ile	Pro	Ile	Thr	Asp	Phe	Pro	Glu	Gly	His	Ser	His	Pro	Ala	Arg	Lys
1410					1415						1420				
Pro	Pro	Asp	Tyr	Asn	Val	Ala	Leu	Gln	Arg	Ser	Arg	Met	Val	Ala	Arg
1425				1430						1435					1440
Ser	Ser	Asp	Thr	Ala	Gly	Pro	Ser	Ser	Val	Gln	Gln	Pro	His	Gly	His
			1445						1450					1455	
Pro	Thr	Ser	Ser	Arg	Pro	Val	Asn	Lys	Pro	Gln	Trp	His	Lys	Pro	Asn
	1460						1465					1470			
Glu	Ser	Asp	Pro	Arg	Leu	Ala	Pro	Tyr	Gln	Ser	Gln	Gly	Phe	Ser	Thr
	1475					1480						1485			
Glu	Glu	Asp	Glu	Asp	Glu	Gln	Val	Ser	Ala	Val					
1490					1495										

<210> 3
 <211> 799
 <212> DNA
 <213> Mus musculus

<400> 3
 actaaaggga acaaaagctg gagctccacc gcggtggcgg ccgctctaga actagtggat 60
 cccccgggct gcaggaattc aagcgggtggg aaggatgtct ccgctgaggc agagagcagc 120
 agcatggtgc ccgtgactac agaggaagcc aaacctgtcc ctatgcctgc ccacatagct 180
 gtgacgccga gcactaccaa gggactcatc gcacggaagg aaggcaggta ccgggagccg 240
 cctccacac ctccaggcta cgtgggcatc cccattgccg atttcccaga agggccttgc 300
 caccggcca ggaagcccc ggattacaac gtggccctgc agcgggtccc catggtggca 360
 cggccactg agggccccgc accggggccag acgcccctgc cagccgcagc cagccggccg 420
 ggcagcaagc cacagtggca caagcccagc gacgcagacc cagccctgc gcccttccag 480
 gcaggcttcg caggagcgga ggaggacgaa gatgaacaag tgtctgctgt ttgaggcgca 540
 ggctccttga tccacagtga gccacccaaa ggagagcaca agaagacgtc ccaagccttg 600
 gagccttggc acgcacatct gaggatggtg gaccagtttg cctccttccc tgccttaaag 660
 cagcatgggg cttcttctcc cttcttctcc ttcccctttg catgtgaaat actgtgaaga 720
 aattgccctg gcactttgca gacttggtgc ttgaaatgca cagcccagca gccctgagc 780
 tgctgcctgc cacgtcacg 799

<210> 4
 <211> 286
 <212> PRT
 <213> Homo sapiens

<400> 4
 Thr Lys Gly Asn Lys Ser Trp Ser Ser Thr Ala Val Ala Ala Ala Leu
 1 5 10 15
 Glu Leu Val Asp Pro Pro Gly Cys Arg Asn Ser Ser Gly Gly Lys Asp
 20 25 30
 Val Ser Ala Glu Ala Glu Ser Ser Ser Met Val Pro Val Thr Thr Glu
 35 40 45
 Glu Ala Lys Pro Val Pro Met Pro Ala His Ile Ala Val Thr Pro Ser
 50 55 60
 Thr Thr Lys Gly Leu Ile Ala Arg Lys Glu Gly Arg Tyr Arg Glu Pro
 65 70 75 80
 Pro Pro Thr Pro Pro Gly Tyr Val Gly Ile Pro Ile Ala Asp Phe Pro
 85 90 95
 Glu Gly Pro Cys His Pro Ala Arg Lys Pro Pro Asp Tyr Asn Val Ala
 100 105 110
 Leu Gln Arg Ser Arg Met Val Ala Arg Pro Thr Glu Ala Pro Ala Pro
 115 120 125
 Gly Gln Thr Pro Pro Ala Ala Ala Ala Ser Arg Pro Gly Ser Lys Pro
 130 135 140

Gln Trp His Lys Pro Ser Asp Ala Asp Pro Arg Leu Ala Pro Phe Gln
 145 150 155 160
 Ala Ala Ser His Ser Gly Thr Ser Pro Ala Thr Gln Thr His Ala Ser
 165 170 175
 Arg Pro Ser Arg Gln Ala Ser Gln Glu Arg Arg Arg Thr Lys Met Asn
 180 185 190
 Lys Cys Leu Leu Phe Glu Ala Gln Ala Pro Xaa Ser Thr Val Ser His
 195 200 205
 Pro Lys Glu Ser Thr Arg Arg Arg Pro Lys Pro Trp Ser Leu Gly Thr
 210 215 220
 His Ile Xaa Gly Trp Trp Thr Ser Leu Pro Pro Ser Leu Pro Xaa Ser
 225 230 235 240
 Ser Met Gly Leu Leu Leu Pro Phe Phe Leu Ser Pro Leu His Val Lys
 245 250 255
 Tyr Cys Glu Glu Ile Ala Leu Ala Leu Cys Arg Leu Val Ala Xaa Asn
 260 265 270
 Ala Gln Pro Ser Ser Pro Xaa Ala Ala Ala Cys His Val Thr
 275 280 285

 <210> 5
 <211> 245
 <212> PRT
 <213> Homo sapiens

 <400> 5
 Leu Lys Gly Thr Lys Ala Gly Ala Pro Pro Arg Trp Arg Pro Leu Xaa
 1 5 10 15
 Asn Xaa Trp Ile Pro Arg Ala Ala Gly Ile Gln Ala Val Gly Arg Met
 20 25 30
 Ser Pro Leu Arg Gln Arg Ala Ala Ala Trp Cys Pro Xaa Leu Gln Arg
 35 40 45
 Lys Pro Asn Leu Ser Leu Cys Leu Pro Thr Xaa Leu Xaa Arg Arg Ala
 50 55 60
 Leu Pro Arg Asp Ser Ser His Gly Arg Lys Ala Gly Thr Gly Ser Arg
 65 70 75 80
 Leu Pro His Leu Gln Ala Thr Trp Ala Ser Pro Leu Pro Ile Ser Gln
 85 90 95
 Lys Gly Leu Ala Thr Arg Pro Gly Ser Pro Arg Ile Thr Thr Trp Pro
 100 105 110

Cys Ser Gly Pro Ala Trp Trp His Gly Pro Leu Arg Pro Arg His Arg
 115 120 125
 Ala Arg Arg Arg Leu Gln Pro Gln Pro Ala Gly Arg Arg Leu Arg Arg
 130 135 140
 Ser Gly Gly Gly Arg Arg Xaa Thr Ser Val Cys Cys Leu Arg Arg Arg
 145 150 155 160
 Leu Leu Asp Pro Gln Xaa Ala Thr Gln Arg Arg Ala Gln Glu Asp Val
 165 170 175
 Pro Ser Leu Gly Ala Leu Ala Arg Thr Ser Glu Asp Gly Gly Pro Val
 180 185 190
 Cys Leu Leu Pro Cys Leu Lys Ala Ala Trp Gly Phe Phe Ser Pro Ser
 195 200 205
 Ser Phe Pro Leu Cys Met Xaa Asn Thr Val Lys Lys Leu Pro Trp His
 210 215 220
 Phe Ala Asp Leu Leu Leu Glu Met His Ser Pro Ala Ala Pro Glu Leu
 225 230 235 240
 Leu Pro Ala Thr Ser
 245

<210> 6
 <211> 266
 <212> PRT
 <213> Homo sapiens

<400> 6
 Xaa Arg Glu Gln Lys Leu Glu Leu His Arg Gly Gly Gly Arg Ser Arg
 1 5 10 15
 Thr Ser Gly Ser Pro Gly Leu Gln Glu Phe Lys Arg Trp Glu Gly Cys
 20 25 30
 Leu Arg Xaa Gly Arg Glu Gln Gln His Gly Ala Arg Asp Tyr Arg Gly
 35 40 45
 Ser Gln Thr Cys Pro Tyr Ala Cys Pro His Ser Cys Asp Ala Glu His
 50 55 60
 Tyr Gln Gly Thr His Arg Thr Glu Gly Arg Gln Val Pro Gly Ala Ala
 65 70 75 80
 Ser His Thr Ser Arg Leu Arg Gly His Pro His Cys Arg Phe Pro Arg
 85 90 95
 Arg Ala Leu Pro Pro Gly Gln Glu Ala Pro Gly Leu Gln Arg Gly Pro
 100 105 110
 Ala Ala Val Pro His Gly Gly Thr Ala His Xaa Gly Pro Gly Thr Gly

115		120		125
Pro Asp Ala Ala Cys Ser Arg Ser Gln Pro Ala Gly Gln Gln Ala Thr				
130		135		140
Val Ala Gln Ala Gln Arg Arg Arg Pro Thr Pro Arg Ala Leu Pro Gly				
145		150		155
Ala Gly Phe Ala Gly Ala Glu Glu Asp Glu Asp Glu Gln Val Ser Ala				
		165		170
Val Xaa Gly Ala Gly Ser Leu Ile His Ser Glu Pro Pro Lys Gly Glu				
		180		185
His Lys Lys Thr Ser Gln Ala Leu Glu Pro Trp His Ala His Leu Arg				
		195		200
Met Val Asp Gln Phe Ala Ser Phe Pro Ala Leu Lys Gln His Gly Ala				
		210		215
Ser Ser Pro Leu Leu Pro Phe Pro Phe Ala Cys Glu Ile Leu Xaa Arg				
225		230		235
Asn Cys Pro Gly Thr Leu Gln Thr Cys Cys Leu Lys Cys Thr Ala Gln				
		245		250
Gln Pro Leu Ser Cys Cys Leu Pro Arg His				
		260		265

<210> 7
 <211> 307
 <212> PRT
 <213> Drosophila melanogaster

<400> 7
Ser Asn Val His Phe Leu His Leu Asn Ala Tyr Glu Leu Ala Ile Gln
1 5 10 15
Leu Thr Leu Gln Asp Phe Ala Asn Phe Arg Gln Ile Glu Ser Thr Glu
20 25 30
Tyr Val Asp Glu Leu Phe Glu Leu Arg Ser Arg Tyr Gly Val Pro Met
35 40 45
Leu Ser Lys Phe Ala Glu Leu Val Asn Arg Glu Met Phe Trp Val Val
50 55 60
Ser Glu Ile Cys Ala Glu His Asn Ile Val Arg Arg Met Lys Ile Val
65 70 75 80
Lys Gln Phe Ile Lys Ile Ala Arg His Cys Lys Glu Cys Arg Asn Phe
85 90 95
Asn Ser Met Phe Ala Ile Val Ser Gly Leu Gly His Gly Ala Val Ser
100 105 110

Arg Leu Arg Gln Thr Trp Glu Lys Leu Pro Ser Lys Tyr Gln Arg Leu
 115 120 125
 Phe Asn Asp Leu Gln Asp Leu Met Asp Pro Ser Arg Asn Met Ser Lys
 130 135 140
 Tyr Arg Gln Leu Val Ser Ala Glu Leu Leu Ala Gln His Pro Ile Ile
 145 150 155 160
 Pro Phe Tyr Pro Ile Val Lys Lys Asp Leu Thr Phe Ile His Leu Gly
 165 170 175
 Asn Asp Thr Arg Val Asp Gly Leu Val Asn Phe Glu Lys Leu Arg Met
 180 185 190
 Leu Ala Lys Glu Val Arg Leu Leu Thr His Met Cys Ser Ser Pro Tyr
 195 200 205
 Asp Leu Leu Ser Ile Leu Glu Leu Lys Gly Gln Ser Pro Ser Asn Ala
 210 215 220
 Leu Phe Ser Leu Asn Gln Met Ser Ala Ser Gln Ser Asn Ala Ala Ala
 225 230 235 240
 Gly Thr Val Ile Ala Ala Asn Ala Gly Gln Ala Thr Ile Lys Arg Arg
 245 250 255
 Lys Lys Ser Thr Ala Ala Pro Asn Pro Lys Lys Met Phe Glu Glu Ala
 260 265 270
 Gln Met Val Arg Arg Val Lys Ala Tyr Leu Asn Ser Leu Lys Ile Leu
 275 280 285
 Ser Asp Glu Asp Leu Leu His Lys Phe Ser Leu Glu Cys Glu Pro Ala
 290 295 300
 His Gly Ser
 305

<210> 8
 <211> 270
 <212> PRT
 <213> Homo sapiens

<400> 8
 Ser Ala Glu Gly Leu Asp Leu Val Ser Ala Lys Asp Leu Ala Gly Gln
 1 5 10 15
 Leu Thr Asp His Asp Trp Ser Leu Phe Asn Ser Ile His Gln Val Glu
 20 25 30
 Leu Ile His Tyr Val Leu Gly Pro Gln His Leu Arg Asp Val Thr Thr
 35 40 45

Ala Asn Leu Glu Arg Phe Met Arg Arg Phe Asn Glu Leu Gln Tyr Trp
 50 55 60
 Val Ala Thr Glu Leu Cys Leu Cys Pro Val Pro Gly Pro Arg Ala Gln
 65 70 75 80
 Leu Leu Arg Lys Phe Ile Lys Leu Ala Ala His Leu Lys Glu Gln Lys
 85 90 95
 Asn Leu Asn Ser Phe Phe Ala Val Met Phe Gly Leu Ser Asn Ser Ala
 100 105 110
 Ile Ser Arg Leu Ala His Thr Trp Glu Arg Leu Pro His Lys Val Arg
 115 120 125
 Lys Leu Tyr Ser Ala Leu Glu Arg Leu Leu Asp Pro Ser Trp Asn His
 130 135 140
 Arg Val Tyr Arg Leu Ala Leu Ala Lys Leu Ser Pro Pro Val Ile Pro
 145 150 155 160
 Phe Met Pro Leu Leu Leu Lys Asp Met Thr Phe Ile His Glu Gly Asn
 165 170 175
 His Thr Leu Val Glu Asn Leu Ile Asn Phe Glu Lys Met Arg Met Met
 180 185 190
 Ala Arg Ala Ala Arg Met Leu His His Cys Arg Ser His Asn Pro Val
 195 200 205
 Pro Leu Ser Pro Leu Arg Ser Arg Val Ser His Leu His Glu Asp Ser
 210 215 220
 Gln Val Ala Arg Ile Ser Thr Cys Ser Glu Gln Ser Leu Ser Thr Arg
 225 230 235 240
 Ser Pro Ala Ser Thr Trp Ala Tyr Val Gln Gln Leu Lys Val Ile Asp
 245 250 255
 Asn Gln Arg Glu Leu Ser Arg Leu Ser Arg Glu Leu Glu Pro
 260 265 270

<210> 9
 <211> 244
 <212> PRT
 <213> Mus musculus

<400> 9
 Lys Ala Glu Cys Phe Glu Thr Leu Ser Ala Met Glu Leu Ala Glu Gln
 1 5 10 15
 Ile Thr Leu Leu Asp His Ile Val Phe Arg Ser Ile Pro Tyr Glu Glu
 20 25 30
 Phe Leu Gly Gln Gly Trp Met Lys Leu Asp Lys Asn Glu Arg Thr Pro

	35		40		45										
Tyr	Ile	Met	Lys	Thr	Ser	Gln	His	Phe	Asn	Glu	Met	Ser	Asn	Leu	Val
	50					55					60				
Ala	Ser	Gln	Ile	Met	Asn	Tyr	Ala	Asp	Ile	Ser	Ser	Arg	Pro	Asn	Ala
65					70					75				80	
Ile	Glu	Lys	Trp	Val	Ala	Val	Ala	Asp	Ile	Cys	Arg	Cys	Leu	His	Asn
				85					90					95	
Tyr	Asn	Gly	Val	Leu	Glu	Ile	Thr	Ser	Ala	Leu	Asn	Arg	Ser	Pro	Ile
			100					105				110			
Tyr	Arg	Leu	Lys	Lys	Thr	Trp	Ala	Lys	Val	Ser	Lys	Gln	Thr	Lys	Ala
	115						120					125			
Leu	Met	Asp	Lys	Leu	Gln	Lys	Thr	Val	Ser	Ser	Glu	Gly	Arg	Phe	Lys
	130					135					140				
Asn	Leu	Arg	Glu	Thr	Leu	Lys	Asn	Cys	Asn	Pro	Pro	Ala	Val	Pro	Tyr
145					150					155				160	
Leu	Gly	Met	Tyr	Leu	Thr	Asp	Leu	Ala	Phe	Ile	Glu	Glu	Gly	Thr	Pro
			165						170					175	
Asn	Phe	Thr	Glu	Glu	Gly	Leu	Val	Asn	Phe	Ser	Lys	Met	Arg	Met	Ile
		180						185					190		
Ser	His	Ile	Ile	Arg	Glu	Ile	Arg	Gln	Phe	Gln	Gln	Thr	Ala	Tyr	Arg
	195						200					205			
Ile	Asp	Gln	Gln	Pro	Lys	Val	Ile	Gln	Tyr	Leu	Leu	Asp	Lys	Ala	Leu
	210					215					220				
Val	Ile	Asp	Glu	Asp	Ser	Leu	Tyr	Glu	Leu	Ser	Leu	Lys	Ile	Glu	Pro
225					230					235				240	
Arg Leu Pro Ala															

<210> 10
 <211> 249
 <212> PRT
 <213> Homo sapiens

<400> 10
 Asp Glu Ile Thr Leu Leu Thr Leu His Pro Leu Glu Leu Ala Arg Gln
 1 5 10 15
 Leu Thr Leu Leu Glu Phe Glu Met Tyr Lys Asn Val Lys Pro Ser Glu
 20 25 30
 Leu Val Gly Ser Pro Trp Thr Lys Lys Asp Lys Glu Val Lys Ser Pro
 35 40 45

Asn Leu Leu Lys Ile Met Lys His Thr Thr Asn Val Thr Arg Trp Ile
 50 55 60
 Glu Lys Ser Ile Thr Glu Ala Glu Asn Tyr Glu Glu Arg Leu Ala Ile
 65 70 75 80
 Met Gln Arg Ala Ile Glu Val Met Met Val Met Leu Glu Leu Asn Asn
 85 90 95
 Phe Asn Gly Ile Leu Ser Ile Val Ala Ala Met Gly Thr Ala Ser Val
 100 105 110
 Tyr Arg Leu Arg Trp Thr Phe Gln Gly Leu Pro Glu Arg Tyr Arg Lys
 115 120 125
 Phe Leu Glu Glu Cys Arg Glu Leu Ser Asp Asp His Leu Lys Lys Tyr
 130 135 140
 Gln Glu Arg Leu Arg Ser Ile Asn Pro Pro Cys Val Pro Phe Phe Gly
 145 150 155 160
 Arg Tyr Leu Thr Asn Ile Leu His Leu Glu Glu Gly Asn Pro Asp Leu
 165 170 175
 Leu Ala Asn Thr Glu Leu Ile Asn Phe Ser Lys Arg Arg Lys Val Ala
 180 185 190
 Glu Ile Ile Gly Glu Ile Gln Gln Tyr Gln Asn Gln Pro Tyr Cys Leu
 195 200 205
 Asn Glu Glu Ser Thr Ile Arg Gln Phe Phe Glu Gln Leu Asp Pro Phe
 210 215 220
 Asn Gly Leu Ser Asp Lys Gln Met Ser Asp Tyr Leu Tyr Asn Glu Ser
 225 230 235 240
 Leu Arg Ile Glu Pro Arg Gly Cys Lys
 245

<210> 11
 <211> 243
 <212> PRT
 <213> Homo sapiens

<400> 11
 Val Ser Leu Leu Phe Asp His Leu Glu Pro Glu Glu Leu Ser Glu His
 1 5 10 15
 Leu Thr Tyr Leu Glu Phe Lys Ser Phe Arg Arg Ile Ser Phe Ser Asp
 20 25 30
 Tyr Gln Asn Tyr Leu Val Asn Ser Cys Val Lys Glu Asn Pro Thr Met
 35 40 45

Glu Arg Ser Ile Ala Leu Cys Asn Gly Ile Ser Gln Trp Val Gln Leu
 50 55 60
 Met Val Leu Ser Arg Pro Thr Pro Gln Leu Arg Ala Glu Val Phe Ile
 65 70 75 80
 Lys Phe Ile Gln Val Ala Gln Lys Leu His Gln Leu Gln Asn Phe Asn
 85 90 95
 Thr Leu Met Ala Val Ile Gly Gly Leu Cys His Ser Ser Ile Ser Arg
 100 105 110
 Leu Lys Glu Thr Ser Ser His Val Pro His Glu Ile Asn Lys Val Leu
 115 120 125
 Gly Glu Met Thr Glu Leu Leu Ser Ser Ser Arg Asn Tyr Asp Asn Tyr
 130 135 140
 Arg Arg Ala Tyr Gly Glu Cys Thr Asp Phe Lys Ile Pro Ile Leu Gly
 145 150 155 160
 Val His Leu Lys Asp Leu Ile Ser Leu Tyr Glu Ala Met Pro Asp Tyr
 165 170 175
 Leu Glu Asp Gly Lys Val Asn Val His Lys Leu Leu Ala Leu Tyr Asn
 180 185 190
 His Ile Ser Glu Leu Val Gln Leu Gln Glu Val Ala Pro Pro Leu Glu
 195 200 205
 Ala Asn Lys Asp Leu Val His Leu Leu Thr Leu Ser Leu Asp Leu Tyr
 210 215 220
 Tyr Thr Glu Asp Glu Ile Tyr Glu Leu Ser Tyr Ala Arg Glu Pro Arg
 225 230 235 240
 Asn His Arg

<210> 12

<211> 48

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: unavailable

<400> 12

Ile Arg Gly Gly Thr Lys Glu Ala Leu Ile Glu His Leu Thr Ser His
 1 5 10 15

Glu Leu Val Asp Ala Ala Phe Asn Val Thr Met Leu Ile Thr Phe Arg
 20 25 30

Ser Ile Leu Thr Thr Arg Glu Phe Phe Tyr Ala Leu Ile Tyr Arg Tyr

35

40

45

<210> 13
 <211> 47
 <212> PRT
 <213> Mus musculus

<400> 13
 Ile Lys Gly Gly Thr Val Val Lys Leu Ile Glu Arg Leu Thr Tyr His
 1 5 10 15
 Met Tyr Ala Asp Pro Asn Phe Val Arg Thr Phe Leu Thr Tyr Arg Ser
 20 25 30
 Phe Cys Lys Gln Glu Leu Leu Asn Leu Leu Ile Glu Arg Phe Glu
 35 40 45

<210> 14
 <211> 48
 <212> PRT
 <213> Mus musculus

<400> 14
 Ile Arg Tyr Ala Ser Val Glu Ala Leu Leu Glu Arg Leu Thr Asp Leu
 1 5 10 15
 Arg Phe Leu Ser Ile Asp Phe Leu Asn Thr Phe Leu His Thr Tyr Arg
 20 25 30
 Ile Phe Thr Thr Ala Thr Val Val Leu Ala Lys Leu Ser Asp Ile Tyr
 35 40 45

<210> 15
 <211> 50
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism: unavailable

<400> 15
 Val Val Lys Phe Ala Ser Leu Asn Lys Leu Val Glu His Leu Thr His
 1 5 10 15
 Asp Ser Lys His Asp Leu Gln Phe Leu Lys Thr Phe Leu Met Thr Tyr
 20 25 30

Gln Ser Phe Cys Thr Pro Glu Lys Leu Met Ser Lys Leu Gln Gln Arg
 35 40 45

Tyr Xaa
 50

<210> 16
 <211> 77
 <212> PRT
 <213> Drosophila melanogaster

<400> 16
 Leu Thr Arg Ser Ser Arg Asp Glu Pro Leu Asn Phe Arg Ile Val Gly
 1 5 10 15

Gly Tyr Glu Leu Arg Gly Val Ala Ile Ala Thr Gly Asn Ala Ala Val
 20 25 30

Gly Ile Tyr Ile Ser His Val Glu Pro Gly Ser Lys Ala Gln Asp Val
 35 40 45

Gly Leu Lys Arg Gly Asp Gln Ile His Glu Val Asn Gly Gln Ser Leu
 50 55 60

Asp His Val Thr Ser Lys Arg Ala Leu Glu Ile Leu Thr
 65 70 75

<210> 17
 <211> 71
 <212> PRT
 <213> Homo sapiens

<400> 17
 Asn Leu Lys Lys Asp Ala Lys Tyr Gly Leu Gly Phe Gln Ile Ile Gly
 1 5 10 15

Gly Glu Lys Met Gly Arg Leu Asp Leu Gly Ile Phe Ile Ser Ser Val
 20 25 30

Ala Pro Gly Gly Pro Ala Asp Leu Asp Gly Cys Leu Lys Pro Gly Asp
 35 40 45

Arg Leu Ile Ser Val Asn Ser Val Ser Leu Glu Gly Val Ser His His
 50 55 60

Ala Ala Ile Glu Ile Leu Gln
 65 70

<210> 18
 <211> 67
 <212> PRT
 <213> Homo sapiens

<400> 18
 Ile Val Ile His Arg Gly Ser Thr Gly Leu Gly Phe Asn Ile Val Gly
 1 5 10 15
 Gly Glu Asp Gly Glu Gly Ile Phe Ile Ser Phe Ile Leu Ala Gly Gly
 20 25 30
 Pro Ala Asp Leu Ser Gly Glu Leu Arg Lys Gly Asp Gln Ile Leu Ser
 35 40 45
 Val Asn Gly Val Asp Leu Arg Asn Ala Ser His Glu Gln Ala Ala Ile
 50 55 60
 Ala Leu Lys
 65

<210> 19
 <211> 68
 <212> PRT
 <213> Rattus rattus

<400> 19
 Val Glu Leu Pro Lys Thr Glu Glu Gly Leu Gly Phe Asn Ile Met Gly
 1 5 10 15
 Gly Lys Glu Gln Asn Ser Pro Ile Tyr Ile Ser Arg Ile Ile Pro Gly
 20 25 30
 Gly Ile Ala Asp Arg His Gly Gly Leu Lys Arg Gly Asp Gln Leu Leu
 35 40 45
 Ser Val Asn Gly Val Ser Val Glu Gly Glu His His Glu Lys Ala Val
 50 55 60
 Glu Leu Leu Lys
 65

<210> 20
 <211> 65
 <212> PRT
 <213> Homo sapiens

<400> 20
 Val Lys Val Gln Lys Gly Ser Glu Pro Leu Gly Ile Ser Ile Val Ser
 1 5 10 15
 Gly Glu Lys Gly Gly Ile Tyr Val Ser Lys Val Thr Val Gly Ser Ile
 20 25 30
 Ala His Gln Ala Gly Leu Glu Tyr Gly Asp Gln Leu Leu Glu Phe Asn
 35 40 45
 Gly Ile Asn Leu Arg Ser Ala Thr Glu Gln Gln Ala Arg Leu Ile Ile
 50 55 60

Gly
65

<210> 21
<211> 98
<212> PRT
<213> *Drosophila melanogaster*

<400> 21
Met Val Phe Ala Val Val Asp Lys Ala Gly Thr Val Val Met Ser Asp
1 5 10 15
Gly Glu Glu Leu Asp Ser Trp Ser Val Leu Ile Asn Gly Ala Val Glu
20 25 30
Ile Glu His Ala Asn Gly Ser Arg Glu Glu Leu Gln Met Gly Asp Ser
35 40 45
Phe Gly Ile Leu Pro Thr Met Asp Lys Leu Tyr His Arg Gly Val Met
50 55 60
Arg Thr Lys Cys Asp Asp Cys Gln Phe Val Cys Ile Thr Gln Thr Asp
65 70 75 80
Tyr Tyr Arg Ile Gln His Gln Gly Glu Glu Asn Thr Arg Arg His Glu
85 90 95
Asp Glu

<210> 22
<211> 99
<212> PRT
<213> *Homo sapiens*

<400> 22
Leu Leu Phe Glu Pro His Ser Lys Ala Gly Thr Val Leu Phe Ser Gln
1 5 10 15
Gly Asp Lys Gly Thr Ser Trp Tyr Ile Ile Trp Lys Gly Ser Val Asn
20 25 30
Val Val Thr His Gly Lys Gly Leu Val Thr Thr Leu His Glu Gly Asp
35 40 45
Asp Phe Gly Gln Leu Ala Leu Val Asn Asp Ala Pro Arg Ala Ala Thr
50 55 60
Ile Ile Leu Arg Glu Asp Asn Cys His Phe Leu Arg Val Asp Lys Gln
65 70 75 80
Asp Phe Asn Arg Ile Ile Lys Asp Val Glu Ala Lys Thr Met Arg Leu
85 90 95

Glu Glu His

<210> 23
<211> 97
<212> PRT
<213> Homo sapiens

<400> 23
Ala Met Phe Pro Val Thr His Ile Ala Gly Glu Thr Val Ile Gln Gln
1 5 10 15
Gly Asn Glu Gly Asp Asn Phe Tyr Val Val Asp Gln Gly Glu Val Asp
20 25 30
Val Tyr Val Asn Gly Glu Trp Val Thr Asn Ile Ser Glu Gly Gly Ser
35 40 45
Phe Gly Glu Leu Ala Leu Ile Tyr Gly Thr Pro Arg Ala Ala Thr Val
50 55 60
Lys Ala Lys Thr Asp Leu Lys Leu Trp Gly Ile Asp Arg Asp Ser Tyr
65 70 75 80
Arg Arg Ile Leu Met Gly Ser Thr Leu Arg Lys Arg Lys Met Tyr Glu
85 90 95

Glu

<210> 24
<211> 97
<212> PRT
<213> Homo sapiens

<400> 24
Cys Met Tyr Gly Arg Asn Tyr Gln Gln Gly Ser Tyr Ile Ile Lys Gln
1 5 10 15
Gly Glu Pro Gly Asn His Ile Phe Val Leu Ala Glu Gly Arg Leu Glu
20 25 30
Val Phe Gln Gly Glu Lys Leu Leu Ser Ser Ile Pro Met Trp Thr Thr
35 40 45
Phe Gly Glu Leu Ala Ile Leu Tyr Asn Cys Thr Arg Thr Ala Ser Val
50 55 60
Lys Ala Ile Thr Asn Val Lys Thr Trp Ala Leu Asp Arg Glu Val Phe
65 70 75 80
Gln Asn Ile Met Arg Arg Thr Ala Gln Ala Arg Asp Glu Gln Tyr Arg
85 90 95

Asn

<210> 25
<211> 103
<212> PRT
<213> Mus musculus

<400> 25
Arg Leu Arg Ser Val Val Tyr Leu Pro Asn Asp Tyr Val Cys Lys Lys
1 5 10 15
Gly Glu Ile Gly Arg Glu Met Tyr Ile Ile Gln Ala Gly Gln Val Gln
20 25 30
Val Leu Gly Gly Pro Asp Gly Lys Ser Val Leu Val Thr Leu Lys Ala
35 40 45
Gly Ser Val Phe Gly Glu Ile Ser Leu Leu Ala Val Gly Gly Gly Asn
50 55 60
Arg Arg Thr Ala Asn Val Val Ala His Gly Phe Thr Asn Leu Phe Ile
65 70 75 80
Leu Asp Lys Lys Asp Leu Asn Glu Ile Leu Val His Tyr Pro Glu Ser
85 90 95
Gln Lys Leu Leu Arg Lys Lys
100

<210> 26
<211> 91
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: unavailable

<400> 26
Arg Glu Asp Phe Glu Ile Ile Arg Val Phe Asp Gly Asn Asn Ser Tyr
1 5 10 15
Arg Ser Gln Ile Ser Arg Asn Ile Val Val Ala Lys His Val Ser Val
20 25 30
Gln Gln Val Arg Asp Ala Ala Leu Arg Arg Phe His Ile Asn Asp Thr
35 40 45
Pro Glu Arg Tyr Tyr Ile Thr Gln Val Val Gly Glu Val Glu Glu Glu
50 55 60
Ile Leu Glu Asp Pro Val Pro Leu Arg Asn Val Lys Arg Pro Glu Gly
65 70 75 80

Lys Arg Ala Gln Ile Phe Ile Arg Tyr Tyr Asp
85 90

<210> 27
<211> 129
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: unavailable

<400> 27
Ser Ile Leu Val Thr Ser Gln Asp Lys Ala Pro Ser Val Ile Ser Arg
1 5 10 15
Val Leu Lys Lys Asn Asn Arg Asp Ser Ala Val Ala Ser Glu Tyr Glu
20 25 30
Leu Val Gln Leu Leu Pro Gly Glu Arg Glu Leu Thr Ile Pro Ala Ser
35 40 45
Ala Asn Val Phe Tyr Ala Met Asp Gly Ala Ser His Asp Phe Leu Leu
50 55 60
Arg His Gly Glu Gly Pro Leu Leu Leu His Leu Ala Ser Pro Val Ala
65 70 75 80
Arg Leu Pro Gln Glu Leu Leu Arg Val Arg Glu Glu Gly Ala Pro Phe
85 90 95
Pro Gly Ser Arg Pro Gln Gly Gly Arg Leu His Gly His Cys Ser Glu
100 105 110
Glu Glu Ala Pro Leu Ala Tyr Arg Ser His Gly Val His Thr Arg Cys
115 120 125

Gly

<210> 28
<211> 149
<212> PRT
<213> Mus musculus

<400> 28
Gly Gly Lys Asp Val Ser Ala Glu Ala Glu Ser Ser Ser Met Val Pro
1 5 10 15

Val Thr Thr Glu Glu Ala Lys Pro Val Pro Met Pro Ala His Ile Ala
 20 25 30

Val Thr Pro Ser Thr Thr Lys Gly Leu Ile Ala Arg Lys Glu Gly Arg
 35 40 45

Tyr Arg Glu Pro Pro Pro Thr Pro Pro Gly Tyr Val Gly Ile Pro Ile
 50 55 60

Ala Asp Phe Pro Glu Gly Pro Cys His Pro Ala Arg Lys Pro Pro Asp
 65 70 75 80

Tyr Asn Val Ala Leu Gln Arg Ser Arg Met Val Ala Arg Pro Thr Glu
 85 90 95

Ala Pro Ala Pro Gly Gln Thr Pro Pro Ala Ala Ala Ala Ser Arg Pro
 100 105 110

Gly Ser Lys Pro Gln Trp His Lys Pro Ser Asp Ala Asp Pro Arg Leu
 115 120 125

Ala Pro Phe Gln Ala Gly Phe Ala Gly Ala Glu Glu Asp Glu Asp Glu
 130 135 140

Gln Val Ser Ala Val
 145